

Work Order ID 136235

Friday, August 28, 2015 2:23:35 PM

136235

First

Page 1

Item ID: D2521

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Individual Bearpaw

Stop ***NS2***

Start Date: 8/28/2015 Start Qty: 4.00

4

Cust Item ID:

Required Date: 8/28/2015 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: SH/LL Date: 1 5 0 9 0 1 Tooling:

Date:

QC: Date: SPC (Y/N):

Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2521	Rev J								

120

0.00

120

FLOW WATER JET

Waterjet

Memo

0.03

FLOW CNC Waterjet

Cut Blank as per D2521 blank file

130

0.00

130

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.06

HAAS CNC vertical machine #1

1-Inspect material for defects or damage prior to machining
2-Machine as per Folio and Dwg D2521 Identify as D2521
3-Deburr

140

0.00

140

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

(5)

08/15/10/13

5

0

15/10/29

DAS
20
9-89 15-10-30

5

0

15/10/29

DAS
20
9-89 15-10-30

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval																																																								
Description Work Order Deviation				Disposition				Completed By																																																							
								Lead hand / Supervisor Approval Verification																																																							
								QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :	
Misidentified ☐	Past Due ☐																																																														

Work Order ID 136235

136235

Page 2

Friday, August 28, 2015 2:23:35 PM

Item ID: D2521 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Individual Bearpaw
 Start Date: 8/28/2015 Start Qty: 4.00 *4* Cust Item ID:
 Required Date: 8/28/2015 Req'd Qty: 4.00 *4* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC8- Inspect parts - second check	0.00							DAS 08 9-89
150									
QC	Memo	0.00							

Quality Control

160	Identify as per dwg & Stock Location:	0.00							
160									
Packaging	Memo	0.00							
Packaging									

170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.01							

Quality Control

ML5 NOV 04 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

Friday, August 28, 2015 1:53:50 PM

Page 1

Work Order ID: 136235

136235

Parent Item: D2521

D2521

Parent Item Name: Individual Bearpaw

Start Date: 8/28/2015

Required Date: 8/28/2015

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:A 08-10-01 New Manufacturing Method JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MUHMWB10		Purchased	No				sf	235.8810		29.47368			

MUHMWB10

UHMW 1" Black - 48"x120" Tivar Mfg.#52480104

08/15/10/B

Location

Loc Qty

Loc Code

MAT

189.514

m131661

43.514

m132063

146

MAT018

46.367

m131335

46.367

133248

34.5

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐			FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		
OTHER : ☐					



DESIGN #	DRAWN BY CB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED #	DRAWING NO. D2521	REV. J SHEET 1 OF 3
DATE 06.07.28		TITLE 205 BEARPAW	SCALE NTS
A	95.11.28	NEW ISSUE	
B	96.01.11	SHOW BENDING MOVE HOLES	
C	96.01.29	ADJUST HOLE LOCATION FOR TOOLING	
D	96.05.14	ADJUSTED BEAR PAW THICKNESS	
E	96.12.18	43.500 WAS 46.750	
F	97.05.07	ADDED REAR POCKET, MOVED HOLES	
G	98.08.06	ADD C'BORE AND CHAMFER EDGES	
H	03.01.30	CHANGE GEOMETRY FOR RUN-ON LDG.	
I	05.05.20	REMOVE BEND; CHANGE TOLERANCES	
J	06.07.28	CHANGE FOR FLOAT SKIDTUBE	

136235 SH 1201.50
20150901

RELEASED

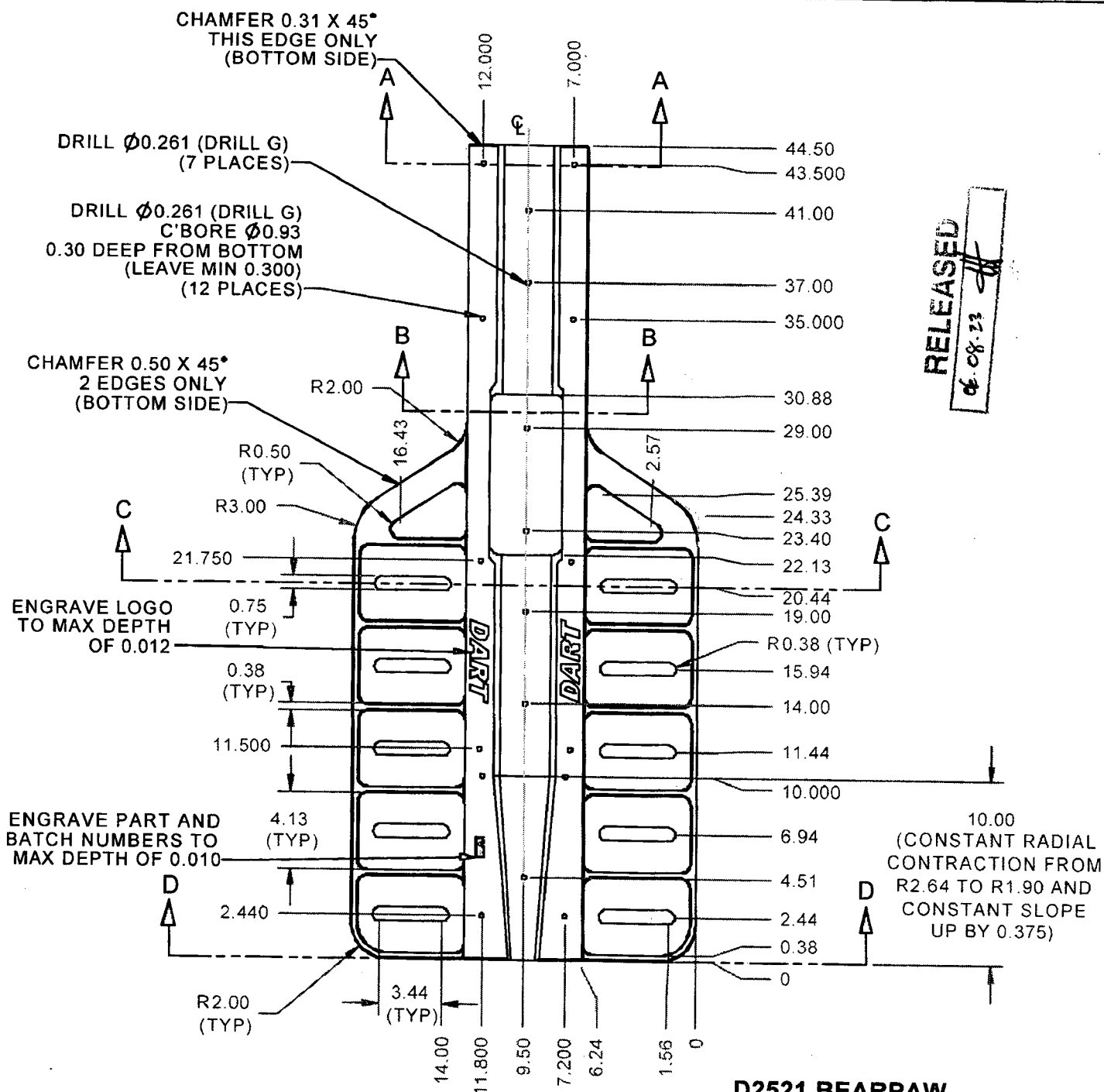
06 08.23

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DESIGN #	DRAWN BY C.B.	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED UP	APPROVED [Signature]	DRAWING NO. D2521	REV. J
DATE 06.07.28	TITLE 205 BEARPAW	SHEET 2 OF 3	
		SCALE 1:8	



D2521 BEARPAW

NOTES:

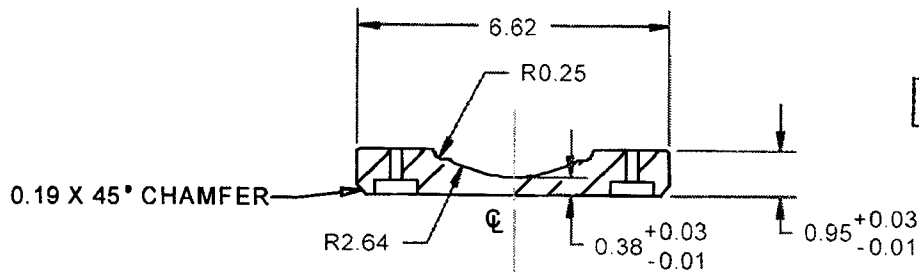
- 1) MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689, 1.000 THICK (MACHINE TO 0.950)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL UNMARKED SHARP EDGES 0.005 TO 0.030
- 6) PART IS SYMMETRIC ABOUT C

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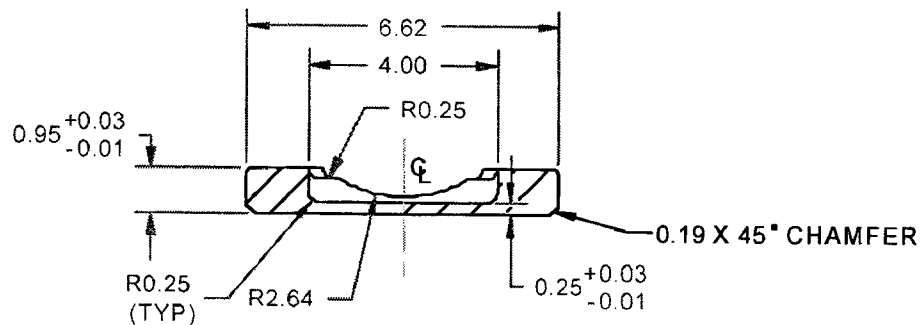
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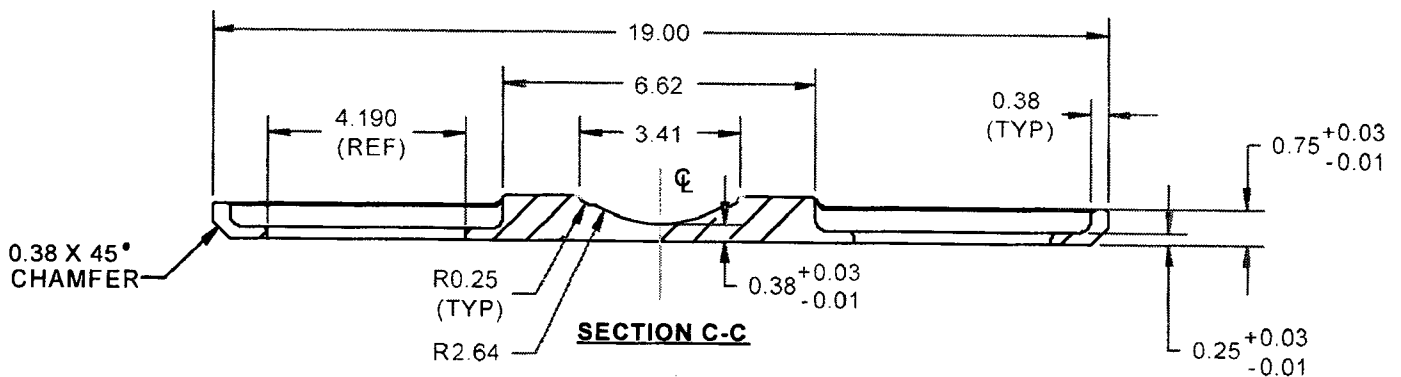
DESIGN #	DRAWN BY C.B.	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED #	DRAWING NO. D2521	REV. J
DATE 06.07.28	TITLE 205 BEARPAW	SHEET 3 OF 3	
		SCALE 1:4	



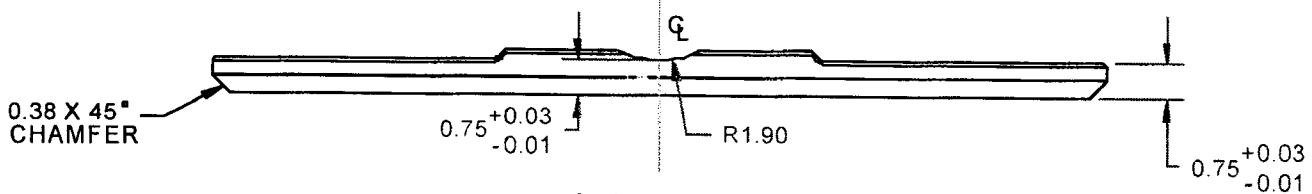
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

RELEASED

06.08.23

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DART AEROSPACE LTD		Work Order:	136235
Description: Bearpaw		Part Number:	D2521
Inspection Dwg: D2521	Rev: J	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet Drawing Dimension			Actual Dimension	Accept	Reject	Method of Inspection	Comments
Dim	Min	Max					
A	0.260	0.266	0.260	✓		MJP-04	vern
B	0.90	0.96	0.932	✓		...	...
C	0.27	0.330	0.320	✓		MJP-08	Dial depth Mic
D	0.470	0.530	0.500	✓		MJP-04	vern
E	21.740	21.760	21.740	✓			
F	0.72	0.780	0.770	✓		MJP-04	vern
G	0.35	0.410	0.380	✓		...	...
H	11.490	11.570	11.490	✓		CNC-02	vern
I	3.41	3.47	3.427	✓		MJP-04	vern
J	11.790	11.810	11.808	✓		CNC-02	vern
K	9.47	9.53	9.508	✓		...	...
L	7.190	7.210	7.190	✓		...	...
M	6.910	6.970	6.935	✓		...	...
N	44.47	44.530	44.500	✓		MJP-07	Tape
O	6.590	6.650	6.625	✓		CNC-02	vern
P	0.940	0.980	0.965	✓		MJP-04	vern
Q	18.97	19.03	19.000	✓		MJP-07	Tape
R	0.350	0.410	0.380	✓		MJP-04	vern
S	0.740	0.780	0.770	✓		...	...
T	0.240	0.280	0.265	✓			
U	0.370	0.410	0.386	✓			
V	0.740	0.780	0.770	✓			
W	0.740	0.780	0.770	✓			

Measured by: <i>[Signature]</i>	Audited by: <i>[Signature]</i>	Prototype Approval:	N/A
Date: 15/11/03	Date: 15/11/03	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	03.09.22	New Issue P/O D205-564-011 & D430-688-011	KJ/RF	
B	05.06.15	Dimensions and tolerances changed	KJ/RF	
C	06.08.31	Dimensions updated per D2521 Rev. J	KJ/JLM	<i>[Signature]</i>